

AMENDMENTS TO THE CLAIMS:

This following listing of claims replaces all prior listings, and all prior versions, of claims in the application:

Listing Of Claims:

1. (Original) A metal-polishing liquid material comprising an oxidized-metal etchant, a protective film-forming agent, and a dissolution promoter for the protective film-forming agent.
2. (Original) The metal-polishing liquid material according to claim 1, further comprising at least one of an oxidizing agent and water.
3. (Original) The metal-polishing liquid material according to claim 1, comprising the ingredient group consisting of the oxidizing agent, the oxidized-metal etchant, the protective film-forming agent and the dissolution promoter in a divided state into two constituent elements not mixed.
4. (Previously Presented) The metal-polishing liquid material according to claim 2, wherein the dissolution promoter is a surfactant.
5. (Original) The metal-polishing liquid material according to claim 4, wherein the surfactant is at least one of esters, ethers, polysaccharides, salts of amino acids, polycarboxylic acids, salts of polycarboxylic acids, vinyl polymers, sulfonic acids, sulfonates, and amides.

6. (Previously Presented) The metal-polishing liquid material according to claim 2, wherein the dissolution promoter is a solvent in which the solubility of the protective film-forming agent is at least 25 g/liter.

7. (Original) The metal-polishing liquid material according to claim 6, wherein the solvent is a good solvent for the protective film-forming agent.

8. (Original) The metal-polishing liquid material according to claim 6, wherein the solvent is at least one of alcohols, ethers and ketones.

9. (Original) The metal-polishing liquid material according to claim 6, wherein the amount of the solvent is smaller than 50 g relative to 100 g of a total amount of the material.

10. (Previously Presented) The metal-polishing liquid material according to claim 2, wherein at least a part of the protective film-forming agent is solid having a mean particle size of at most 100 μm .

11. (Previously Presented) The metal-polishing liquid material according to claim 2, further comprising abrasive grains.

12. (Original) A metal-polishing liquid which comprises an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent, a dissolution promoter for the protective film-forming agent, and water.

13. (Original) The metal-polishing liquid according to claim 12, wherein the dissolution promoter is a surfactant.

14. (Original) The metal-polishing liquid according to claim 12, wherein the dissolution promoter is a solvent in which the solubility of the protective film-forming agent is at least 25 g/liter.

15. (Original) The metal-polishing liquid according to claim 12, wherein at least a part of the protective film-forming agent is solid, having a mean particle size of at most 100 μm .

16. (Original) The metal-polishing liquid according to claim 12, further comprising abrasive grains.

17. (Previously Presented) A method for producing a metal-polishing liquid, comprising a step of diluting the metal-polishing liquid material of claim 2 with a diluent.

18. (Original) A method for producing a metal-polishing liquid of claim 12, comprising a step of diluting a metal-polishing liquid material comprising at least one

ingredient of an ingredient group consisting of an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter for the protective film-forming agent, with an aqueous solution for dilution of at least one ingredient of the ingredient group.

19. (Previously Presented) A method for producing a metal-polishing liquid which comprises a step of mixing the following in any desired order:

a first constituent element that contains at least one ingredient of an ingredient group consisting of an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter for the protective film-forming agent,

a second constituent element that contains at least one of the other ingredients of the ingredient group, and

a diluent,

wherein at least one of the first constituent element and the second constituent element includes the dissolution promoter for the protective film-forming agent.

20. (Previously Presented) The method for producing a metal-polishing liquid according to claim 19, wherein the diluent is water or an aqueous diluent solution.

21. (Original) The method for producing a metal-polishing liquid according to claim 19, wherein the first constituent element comprises an oxidizing agent, and

the second constituent element comprises an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter.

22. (Original) The method for producing a metal-polishing liquid according to claim 19, wherein the first constituent element further comprises the protective film-forming agent and the dissolution promoter.

23. (Original) The method for producing a metal-polishing liquid as claimed in claim 19, wherein in the mixing step, the oxidizing agent and the oxidizing agent-containing mixture are kept at a temperature at most 40°C.

24. (Original) The method for producing a metal-polishing liquid as claimed in claim 19, wherein at least a part of the protective film-forming agent is solid, having a mean particle size of at most 100 μm , and is dissolved or dispersed in the metal-polishing liquid in the mixing step.

25. (Original) A polishing method comprising a polishing step of;
applying the metal-polishing liquid of claim 12 to a polishing pad set on a platen, and

polishing the surface of an article to be polished with the polishing pad by moving the polishing pad and the surface of the article relatively to each other while keeping the surface of the article in contact with the polishing pad.

26. (Original) The polishing method according to claim 25, further comprising a step of mixing the constituent elements of the metal-polishing liquid to prepare the metal-polishing liquid, prior to the polishing step,

wherein; the mixing step is for mixing the following:

a first constituent element that contains at least one ingredient of an ingredient group consisting of an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter for the protective film-forming agent,

a second constituent element that contains at least one of the other ingredients of the ingredient group, and

a diluent,

in any desired order.

27. (Previously Presented) The metal-polishing liquid material according to claim 1, wherein the dissolution promoter is a surfactant.

28. (Previously Presented) The metal-polishing liquid material according to claim 27, wherein the surfactant is at least one of esters, ethers, polysaccharides, salts of amino acids, polycarboxylic acids, salts of polycarboxylic acids, vinyl polymers, sulfonic acids, sulfonates, and amides.

29. (Previously Presented) The metal-polishing liquid material according to claim 1, wherein the dissolution promoter is a solvent in which the solubility of the protective film-forming agent is at least 25 g/liter.

30. (Previously Presented) The metal-polishing liquid material according to claim 29, wherein the solvent is a good solvent for the protective film-forming agent.

31. (Previously Presented) The metal-polishing liquid material according to claim 29, wherein the solvent is at least one of alcohols, ethers and ketones.

32. (Previously Presented) The metal-polishing liquid material according to claim 29, wherein the amount of the solvent is smaller than 50 g relative to 100 g of a total amount of the material.

33. (Previously Presented) The metal-polishing liquid material according to claim 1, wherein at least a part of the protective film-forming agent is solid having a mean particle size of at most 100 μm .

34. (Previously Presented) The metal-polishing liquid material according to claim 1, further comprising abrasive grains.

35. (Previously Presented) A method for producing a metal-polishing liquid, comprising a step of diluting the metal-polishing liquid material of claim 1 with a diluent.

36. (Previously Presented) The method for producing a metal-polishing liquid according to claim 17, wherein the diluent is water or an aqueous diluent solution.

37. (Previously Presented) metal-polishing liquid material according to claim 1, wherein said dissolution promoter promotes dissolving of the protective film-forming agent in water.

38. (Previously Presented) The metal-polishing liquid material according to claim 3, wherein each ingredient of said ingredient group is a different ingredient.

39. (Previously Presented) The metal-polishing liquid material according to claim 2, wherein the protective film-forming agent, the dissolution promoter, the oxidized-metal etchant, the oxidizing agent and water are different ingredients.

40. (Previously Presented) The metal-polishing liquid material according to claim 1, wherein the protective film-forming agent is at least one selected from the group consisting of ammonia, amines, amino acids, imines, azoles, mercaptans, polysaccharides, salts of amino acids, polycarboxylic acids and their salts, and vinyl polymers.

41. (Previously Presented) The metal-polishing liquid material according to claim 40, wherein the dissolution promoter is a surfactant or solvent for the protective film-forming agent.

42. (Previously Presented) The metal-polishing liquid material according to claim 41, wherein the dissolution promoter is a surfactant.

43. (Previously Presented) The metal-polishing liquid material according to claim 42, wherein the surfactant is at least one of esters, ethers, polysaccharides, salts of amino acids, polycarboxylic acids, salts of polycarboxylic acids, vinyl polymers, sulfonic acids, sulfonates, and amides.

44. (Previously Presented) The metal-polishing liquid material according to claim 41, wherein the dissolution promoter is a solvent for the protective film-forming agent, in which solubility of the protective film-forming agent is at least 25 g/liter.

45. (Previously Presented) The metal-polishing liquid material according to claim 41, wherein the dissolution promoter is a solvent for the protective film-forming agent, and is at least one selected from the group consisting of alcohols, ethers and ketones.

46. (Previously Presented) The metal-polishing liquid material according to claim 1, wherein the dissolution promoter is a solvent for the protective film-forming agent, in which the solubility of the protective film-forming agent is at least 40 g/liter.

47. (Previously Presented) The metal-polishing liquid material according to claim 1, wherein the dissolution promoter is a solvent for the protective film-forming agent, in which the solubility of the protective film-forming agent is at least 50 g/liter.

48. (Previously Presented) The metal-polishing liquid according to claim 12, wherein the protective film-forming agent is at least one selected from the group consisting of ammonia, amines, amino acids, imines, azoles, mercaptans, polysaccharides, salts of amino acids, polycarboxylic acids and their salts, and vinyl polymers.

49. (Previously Presented) The metal-polishing liquid according to claim 48, wherein the dissolution promoter is a surfactant or solvent for the protective film-forming agent.

50. (Previously Presented) The metal-polishing liquid according to claim 49, wherein the dissolution promoter is a surfactant.

51. (Previously Presented) The metal-polishing liquid according to claim 50, wherein the surfactant is at least one of esters, ethers, polysaccharides, salts of amino acids, polycarboxylic acids, salts of polycarboxylic acids, vinyl polymers, sulfonic acids, sulfonates, and amides.

52. (Previously Presented) The metal-polishing liquid according to claim 49, wherein the dissolution promoter is a solvent for the protective film-forming agent, in which solubility of the protective film-forming agent is at least 25 g/liter.

53. (Previously Presented) The metal-polishing liquid according to claim 49, wherein the dissolution promoter is a solvent for the protective film-forming agent, and is at least one selected from the group consisting of alcohols, ethers and ketones.

54. (Previously Presented) The metal-polishing liquid according to claim 12, wherein the dissolution promoter is a solvent for the protective film-forming agent, in which the solubility of the protective film-forming agent is at least 40 g/liter.

55. (Previously Presented) The metal-polishing liquid according to claim 12, wherein the dissolution promoter is a solvent for the protective film-forming agent, in which the solubility of the protective film-forming agent is at least 50 g/liter.

56. (New) A polishing method, comprising:
preparing first and second constituent elements, and at least one diluent, of a metal-polishing liquid, wherein the first constituent element contains at least one ingredient of an ingredient group consisting of an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter for the protective film-forming agent, and the second constituent element contains other ingredients of the ingredient group;

after the preparing, mixing the first constituent element, the second constituent element and the at least one diluent, to prepare the metal-polishing liquid;

applying metal-polishing liquid material, forming the metal-polishing liquid, to a polishing pad set on a platen; and

after said mixing, polishing the surface of an article to be polished with the polishing pad containing the metal-polishing liquid by moving the polishing pad and the surface of the article relatively to each other while keeping the surface of the article in contact with the polishing pad.

57. (New) The polishing method according to claim 56, wherein the first and second constituents and the at least one diluent are mixed at a location outside a polishing device having said polishing pad, thereby forming the metal-polishing liquid, and the metal-polishing liquid is stored in a tank prior to being applied to the polishing pad.

58. (New) The polishing method according to claim 56, wherein said mixing is performed in a polishing device having said polishing pad.

59. (New) The polishing method according to claim 56, wherein said mixing is performed in a supply tube for supplying the metal-polishing liquid to the polishing pad.

60. (New) The polishing method according to claim 56, wherein said mixing is performed on said polishing pad.

61. (New) The polishing method according to claim 56, wherein each ingredient of said ingredient group is a different ingredient, wherein the protective film-forming agent is at least one selected from the group consisting of ammonia, amines, amino acids, imines, azoles, mercaptans, polysaccharides, salts of amino acids, polycarboxylic acids and their salts, and vinyl polymers, wherein the dissolution promoter is a surfactant or solvent for the protective film-forming agent, and wherein the diluent is water or an aqueous diluent solution.

62. (New) A polishing method, comprising:

providing a metal-polishing liquid in a divided state, which includes a first constituent element and a second constituent element, and at least one diluent, which are not mixed, wherein the first constituent element contains at least one ingredient of an ingredient group consisting of an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter for the protective film-forming agent, and the second constituent element contains other ingredients of the ingredient group;

mixing the first and second constituent elements, and the at least one diluent, to prepare the metal-polishing liquid;

applying metal-polishing liquid material, forming the metal-polishing liquid, to a polishing pad set on a platen; and

after the mixing, polishing the surface of an article to be polished with the polishing pad containing the metal-polishing liquid by moving the polishing pad and the surface of the article relatively to each other while keeping the surface of the article in contact with the polishing pad.

63. (New) The polishing method according to claim 62, wherein the first and second constituents and the at least one diluent are mixed at a location outside a polishing device having said polishing pad, thereby forming the metal-polishing liquid, and the metal-polishing liquid is stored in a tank prior to being applied to the polishing pad.

64. (New) The polishing method according to claim 62, wherein said mixing is performed in a polishing device having said polishing pad.

65. (New) The polishing method according to claim 62, wherein said mixing is performed in a supply tube for supplying the metal-polishing liquid to the polishing pad.

66. (New) The polishing method according to claim 62, wherein said mixing is performed on said polishing pad.

67. (New) The polishing method according to claim 62, wherein each ingredient of said ingredient group is a different ingredient, wherein the protective film-forming agent is at least one selected from the group consisting of ammonia,

amines, amino acids, imines, azoles, mercaptans, polysaccharides, salts of amino acids, polycarboxylic acids and their salts, and vinyl polymers, wherein the dissolution promoter is a surfactant or solvent for the protective film-forming agent, and wherein the diluent is water or an aqueous diluent solution.

68. (New) A polishing method, comprising:

diluting a metal-polishing liquid material comprising at least one ingredient of an ingredient group consisting of an oxidizing agent, an oxidized-metal etchant, a protective film-forming agent and a dissolution promoter for the protective film-forming agent, with an aqueous solution for dilution of at least one ingredient of the ingredient group, thereby preparing a metal-polishing liquid, a polishing pad being provided with said metal-polishing liquid; and

polishing the surface of an article to be polished with the polishing pad provided with said metal-polishing liquid by moving the polishing pad and the surface of the article relatively to each other while keeping the surface of the article in contact with the polishing pad.

69. (New) The polishing method according to claim 68, wherein said diluting is performed at a location outside a polishing device having said polishing pad, and the metal-polishing liquid is stored in a tank prior to being provided to said polishing pad.

70. (New) The polishing method according to claim 68, wherein said diluting is performed in a polishing device having said polishing pad.

71. (New) The polishing method according to claim 68, wherein said diluting is performed in a supply tube for supplying the metal-polishing liquid to the polishing pad.

72. (New) The polishing method according to claim 68, wherein said diluting is performed on said polishing pad.

73. (New) The polishing method according to claim 68, wherein each ingredient of said ingredient group is a different ingredient, wherein the protective film-forming agent is at least one selected from the group consisting of ammonia, amines, amino acids, imines, azoles, mercaptans, polysaccharides, salts of amino acids, polycarboxylic acids and their salts, and vinyl polymers, and wherein the dissolution promoter is a surfactant or solvent for the protective film-forming agent.